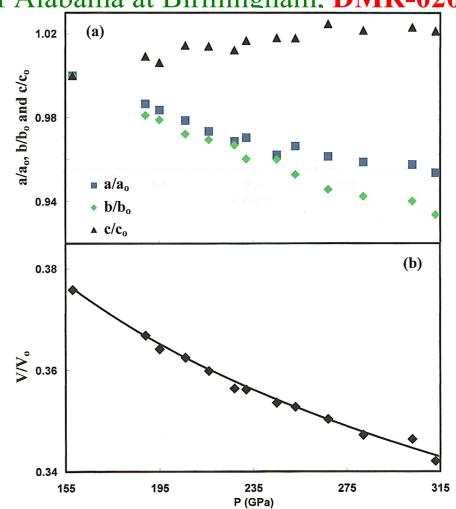
## Distortion of Alpha-Uranium (α-U) Structure in Praseodymium Metal at High Pressures

Yogesh Vohra, University of Alabama at Birmingham. DMR-0203779

We have investigated the stability of α-U structure in Praseodymium metal to a nearly three fold compression to a pressure of 313 GPa. An unexpected structural distortion to a primitive orthorhombic phase is observed at 147±5 GPa. The present results illustrate that novel pathways exist for the  $\alpha$ -U structure to distort and lower its energy in fband metals at extreme compressions. A body centred tetragonal phase predicted by theory above 100 GPa is not observed.

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(a) The upper curve shows the anisotropic compression of Pr metal in the new phase discovered at high pressures. (b) The lower curve shows P-V compression curve.

## High Pressure Metals Research

## Yogesh Vohra, University of Alabama at Birmingham, DMR-0203779

**Education:** PI Yogesh Vohra's high pressure lab at UAB provides extensive graduate and undergraduate students training in high pressure materials research. Several of recent graduate students have joined national labs and are currently active in static and dynamic pressure research. Undergraduate and graduate students also get research training at the National Synchrotron Research Facilities at Brookhaven National Lab and Argonne National Laboratory



PI Yogesh Vohra and graduate student Jeremy Reed Patterson conducting high pressure research with a diamond anvil cell at the University of Alabama at Birmingham. Dr. Patterson is now at Lawrence Livermore National Laboratory.